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ABSTRACT

This paper considers the question of how much of the instructional process instructional designers should control by pre-planning and managing instruction so that it is equitable, focusing on three specific concerns: (1) whether the designer who plans the instruction or the student is responsible for student learning; (2) whether or not the contingencies of instruction can be managed so as to ensure student learning; and (3) how instructional design can encourage learner self-development and ensure that students take some responsibility for their own learning. With regard to the first concern, it is argued that instructional designers often assume too much responsibility when students fail to learn, and that there is no guarantee that each learner will succeed without internal motivation and active involvement. With regard to the second concern, it is suggested that the search for a science of instructional design may be futile or, at the very least, may fail to address the needs of individual learners, special interest groups, ethnic and minority groups, and women and girls. With regard to the third concern, it is argued that greater opportunity for learner self-development may require instructional designers to relinquish some of the responsibility and control of the design process. (20 references) (EW)

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Title:

SYMPOSIUM: Technological Equity: Issues in Ethics & Theory

Paper #6 The Ethics of Equity in Instructional Design

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THE ETHICS OF EQUITY IN INSTRUCTIONAL DESIGN

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One of the fundamental assumptions of instructional design is that the process facilitates fair, or equitable, instruction for all students. Needs assessment procedures are one of the ways used to insure instructional equity. Theoretically, instructional designers gather information from a variety of sources about a variety of issues, people, and resources, so that instruction can be optimized for each learner. Mastery learning is another means for insuring instructional equity. Prerequisite skills, knowledge, and attitudes are assessed and used to design instruction that capitalizes on individual capabilities. Alternative strategies are used to insure that each learner has the "best" learning environment. Criterion referenced evaluation is intended to provide fair assessment; remediation and enrichment activities are included to help an individual student reach her or his full potential. In fact, the very notion of "traditional" classroom instruction, that is, teaching to the average or middle group in a class, is distasteful to instructional designers who insist that each student is an individual and deserves special attention in relation to his or her capabilities. The ethical way to design and implement equitable instruction is to use instructional design procedures and strategies.

The use of technological means to increase individual potential is heralded by some as the crowning achievement of educational technology. Computers, high-tech video equipment, and robotic manipulators can be programmed to provide quality instruction for all minority, ethnic, and special groups by taking into account individual and group characteristics. An individual learner can proceed at his or her own rate, through sequences of instruction that are specifically suited to individual needs, with "correct" amounts of feedback to increase motivation, decrease anxiety, and increase achievement. Designers apparently have a world of possibilities at their fingertips. Yet, here is a symposium that questions some of the fundamental assumptions of the field. Perhaps, the authors suggest, educational technology does not provide or promote equitable instruction for all. Some of the authors suggest that we might be able to promote equity if we approached design differently; that is, if we asked different questions during a needs assessment, included different cognitive and affective knowledge and skills in our instruction or used different strategies. Other authors, however, take a more radical view and question whether or not educational technology and equity are mutually exclusive. Like the old George Carlin joke about military intelligence being a contradiction in terms, these authors wonder if educational technology and equity are an oxymoron.

There are no doubt numbers of arguments that can be made to refute or to support the educational technology and equity question. However, since the theoretical and philosophical bases of ID support equity in instruction, the purpose of this paper is to present three issues related to designing equitable instruction. The overriding question to be addressed is: How much of the instructional process should instructional designers control by pre-planning and managing instruction so that it is equitable or unbiased. Since this is quite complex, three related issues will

be discussed that may help us come to grips with our responsibilities as educators regarding the design of equitable instruction.

Toward More Equitable Instructional Design

The issues raised in this paper are value questions or philosophical issues that have no inherent correctness or incorrectness to them. They are intended to promote discussion. The first issue addresses who is responsible for student learning, the designer who plans the instruction, or the student? The second issue addresses whether or not we can now or ever will be able to manage the contingencies of instruction so that we can insure student learning. The third issue focuses on student self-development and the requirement that students should assume some responsibility for their own learning. I have omitted specific issues related to knowledge bases and content that should be included in instructional objectives since Taylor and Swartz (1988) have already addressed these issues.

*The Issue of Respon*sibility

I remember the first university course I taught using instructional design procedures. The course was an ID course and I was thoroughly prepared (or so I thought). I remember my devastation after the midterm when about one-quarter of the class did much more poorly than I anticipated. What had I done wrong? What did I forget in designing this class? Were the objectives too hard? Did I miss some prerequisites? Were the materials appropriate for the objectives? Were the examples representative? Did I fail to motivate the students? Using the systems approach that I had been taught, I tried to figure out what I had done wrong. I did not at the time give serious attention to the fact that perhaps at least some of the students who had done poorly were to blame for their own poor performance. Perhaps I had designed good or even very good instruction, and perhaps I had even delivered it well. Perhaps it was the students who had not taken responsibility for their own learning.

The first issue I would like to raise regarding equity revolves around the issue of who is primarily responsible for student learning? Instructional design theory highlights managing the contingencies of instruction, that is, pre-planning and organizing the design and delivery of instruction. While the learners' role can be active (Romiszowski, 1981), it is by and large the instructional designer or teacher who plans and manages the instruction.

Who Should be Responsible? I should have been prepared for the problem I faced with that first class because a professor of mine who was a strong advocate of instructional design once remarked that we (professors, students, and the educational system in general) were going to pay a price for assuming so much responsibility for student learning. He hypothesized that as designers and teachers took responsibility for insuring student success by assessing learner needs, setting objectives, determining optimal instructional strategies, using the latest and "best" delivery systems, construction and using fair evaluation devices, and "recycling"

students who fail to reach mastery, that we left little responsibility for the learner. He summed up his thoughts by saying that student failures became our failures and that our failure was the inability to control the variables necessary to design "perfect" instruction. At what point, he asked, do we say that the learner didn't learn because of something he or she did or did not do, rather than because of something we did not do?

While the professor's comments are in some ways extreme, what he said also has some truth. Instructional design does put instructional control and decision-making in the hands of the designer or teacher. If we believe that we can control the variables and design adequate instruction, are we also assuming that by our efforts we should also be able to insure student success? I believe so. Yet research suggests that quality of instruction accounts for very little (perhaps 5%) of achievement variance (Martin & Briggs, 1986). Martin and Briggs (1986) state ". . ., and by any definition of quality of instruction *presently within our state of the art*, we estimate, with chagrin, that quality of instruction must be ranked relatively low as we have it here, among the more powerful influences upon learning" (p. 31). They suggest that the more powerful influences on student achievement are home environment, intelligence, motivation, and self-esteem to name only a few.

Instructional designers persist. We want to activate the internal processes of the learner, insure their attention, and motivate them by designing exciting instruction. Having done the above, if a student is not successful we generally conclude that the instruction was flawed and that we can correct it. Rarely do we say (at least publicly) that the student didn't try hard enough, or didn't spend enough time, or didn't care enough.

I have intentionally overstated this issue of responsibility because I believe it is one of the key ethical issues that instructional designers have to contend with when dealing with issues of equity. Naturally, instructional designers and teachers must assume some responsibility for student success and failure. There are things we know which promote student learning, such as time on task, and our designs can provide for adequate practice opportunities with appropriate learning materials. However, there is no guarantee that each learner will succeed using these methods and materials *without internal motivation and active involvement*. There are some things that we neither can be responsible for nor should we be responsible for. Where that balance lies between our responsibility and student responsibility is one of the important ethical decisions we will have to face as we address the issue of equity.

The Issue of Managing the Contingencies of Instruction

There is certainly nothing wrong with attempting to design instruction that is motivating and that meets the needs of each learner, but the task we set for ourselves in trying to control every aspect of instruction, making it responsive to each and every students is impossible. It is not impossible because we do not try hard enough, or because the desire is not there, it is impossible because there are too many variables with which to contend. ATI research demonstrated that years ago. After years of research and substantial reviews of the findings Cronbach and Snow (1977) concluded that "no Aptitude X Treatment Interactions are so well

confirmed that they can be used directly as guides to instruction" (p. 492). In addition to inconclusive results were a number of other problems with ATI research: inconsistent results, results that were not replicable, generalizations that were not stable across populations groups, and even generalizations that were not stable from one decade to the next (Tobias, 1987).

There are some parallels between the ATI research and the issue of controlling the variables in instructional design. Reiguluth (1983) has spearheaded a "movement" to develop a prescriptive theory of instructional design. It has much the same motivation as the ATI research, that is, to determine the optimal methods for instruction under certain conditions (learners and environment) for pre-specified, desired outcomes. Given such a prescriptive theory, instructional designers and practitioners could develop instruction systematically with some degree of certainty that prescribed methods would produce desired outcomes for particular groups of learners under certain conditions. The search, then, is for a science of instructional design.

What Reiguluth and other researchers (Gropper, 1983; Landa, 1983; Snelbecker, 1983) are attempting is noble, however, it may be futile. It may be that, like the ATI research preceding it, that there is no systematic way to develop a comprehensive theory of instructional design. This need not be looked at as a failure. The problem may be a practical one, that is, there are too many variables to account for and control and that the amounts of variance that any given variable can account for fluctuates from situation to situation, over time, with different groups.

Nichols (1988) suggests, however, that the issue of managing the contingencies of instruction may be a moral one. Using an existential point of view, he questions the "predominantly rational view of learning and instruction" proposed by educational technologists. He characterizes extreme rationalism and our quest for controlling instruction and learners as morally indefensible.

If it is either a practical impossibility to design instruction with the precision we desire or if it is morally indefensible, what is the ethical approach to designing instruction, taking into account the individual learner, special interest groups, and ethnic and minority groups, specifically instruction that is more responsive to females (Belland & Baker, 1988; Damarin, 1988) and to disabled learners (Howell, 1988)? How much can we promise? Which group(s) should receive the lion's share of our time and resources?

While there are numbers of related ethical issues regarding managing and controlling instruction, the one I would like to highlight is: Are we promising too much to practitioners and learners? Based on excellent research done previously, i.e., the ATI studies, we know that we cannot now and may never be able to be as precise in our design as some would like. The fact that this is true should not deter us as a field from continuing to discover generalizations about optimal methods for specific groups of learners. However, it is unethical to promote the idea that we presently have a science of instructional design that "works" or that we will have one in the near future.

There is, however, much valuable information that we can impart to practitioners, e.g., the benefits of systems thinking and systems design, the benefits of objectives and criterion referenced evaluation, and the benefits of

computers and interactive video discs. But there are multiple points of view about the theoretical bases and practical ideas we support and promote. Part of our job as educators is to stimulate discussion rather than to say we have grounded answers and findings when in fact we do not. Practitioners are capable of making their own decisions. If our ideas and theories are sound, they will "sell" themselves.

The Issue of Learner Self-development

One implicit purpose of education is to increase learners' independence and self-reliance. We want students who can think for themselves, direct and be responsible for their own learning, and who are self-motivated. Even though some of the papers presented here suggest that we as instructional designers need to be more responsive to the needs of a greater variety of learners in the design process, they also say that we need to promote and foster self-development. For example, Howell (1988) makes a plea for instructional designers to plan and implement instruction that assists disabled learners to become more self-sufficient and independent.

Belland and Baker (1988) and Damarin (1988) describe the need for increasing the individual freedom of women. Although, Belland and Baker focus on visual-spatial thinking as a factor in limiting female development, their interest appears to be in providing full opportunities for all learners whether male or female. They say, "In our system of education, anyone has the right to develop aptitudes and abilities to their full potential."

Damarin, describing ICAI and its potential benefits and effects on women, suggests that ICAI include indices such as difficulty, anxiety, and usefulness attached to the mathematical knowledge domain so that the female learner might have greater control over her own learning. Since research suggests that different cultural groups and perhaps males and females use alternate modes of information seeking and gathering, the implication is "that the organization of concepts in ICAI must be fluid rather than fixed, giving learners the opportunity to structure their own knowledge in a manner consistent with their own linguistic and cognitive structures."

Nichols (1988) concurs. He suggests that students should have more say in the instructional design process. He goes on to suggest that educational technology may fail to develop the whole essence of individuals, that we in fact compartmentalize individuals. Rather, "We should look for and allow the mental, physical, and, shall we say, spiritual aspects of humans."

These authors are calling for a learning system and environment that fosters individual self-development. The goals are to (a) increase the personal independence of learners, and (b) allow opportunities for choice and decision-making in the instructional design process, while at the same time providing for (c) specialized educational interventions that reduce or eliminate bias toward ethnic, minority or special interest groups so that these learners can reach their full potential, and (d) provide access to tools and experiences that will increase the quality of life for all.

One of the external conditions of learning that promotes personal independence and self-development is to provide opportunities for self-directed behavior, for example, opportunities for learners to set their own goals, evaluate their own performance, and select and use learning activities and strategies suited to their learning styles and preferences (Martin & Briggs, 1986). In order to provide these opportunities instructional designers may have to relinquish some of the responsibility and control of the design process and develop instruction that is more flexible and that is not replicable since objectives, activities, strategies, and evaluation may vary to fit learner needs *from their perspective.*

The issues related to promoting self-development, by providing opportunities for choice, are fairly obvious. Questions arise such as:

1. How competent are students to determine what they should learn? Will they omit important content that is crucial for fully functioning in this world? Are designers more capable than students and parents in determining which pre-selected body of knowledge to transfer (Taylor & Swartz, 1988)?

2. How capable are special students, i.e., disabled learners, functional illiterates, to select appropriate objectives and learning methods that will increase their cognitive and affective development? If designers provide a range of options so that students can make choices, is that adequate?

3. How should we respond to gender issues? What if educational interventions have the opposite effect than intended, e.g., a more powerful effect on males (Belland & Baker, 1988)? How should we respond to researchers from the feminist perspective who state that knowledge is not value-free and may have masculine connotations? What if students are unaware or unconcerned about these issues?

4. Should instruction first be designed that teaches students how to manage their own learning as Derry (1984) and Sternberg (1983) have suggested. If yes, what aspects of curriculum should be omitted so that this instruction can be included? How much influence should instructional designers exert in preparing such instruction.

There are no easy answers to such questions. There is no way to know how much pedagogical knowledge to apply to any learning situation, nor is there any way to know how many options to give individual learners, or how often to do so. To even attempt to define such rational and logical procedures offends some. However, the issue can be approached as an ethical one. We have the responsibility as educators to promote student self-growth and development. We also have a responsibility to extend and expand the knowledge base in our field so that quality instruction can be designed that provides a chance for all learners to have a full and rewarding life. How we balance these two responsibilities is an ethical issue.

Summary and Conclusions

At the philosophic core of instructional design is the belief that each learner is an individual and that instruction can be designed that capitalizes on individual strengths. Therefore, we support and promote equity in instruction. What causes concern for some in our field is that the knowledge we select and the processes and strategies we use may actually deter us from our goal of designing equitable instruction. So, while we maintain the belief that we can and should design unbiased and impartial instruction for all learners, the research (and our practical experience) leads us to question the practicality of this assumption. In relation to this, three issues were raised.

The first concerns who is responsible for student success. Instructional designers have perhaps taken more responsibility for student success than they should. By trying to control and manage the contingencies of instruction so that each learner succeeds, we have taken responsibility for success away from learners. We need to think again about who is responsible for student learning, including what the learner should be responsible for and how to promote responsible behavior. Some of the research on social learning theory constructs such as self-efficacy (Bandura, 1977) and self-regulatory behavior (Bandura, 1978), and the research on attributions (Bar-Tal, 1978; Weiner, 1979) and learned helplessness (Abramson, Seligman, & Teasdale, 1978) may provide valuable insights on how to proceed with this.

The second issue deals with our ability to design instruction that delivers what it promises. Instruction is a science and an art. To suggest that we have developed a comprehensive theory of instructional design or that we can is misleading. To suggest that we can design instruction that will meet the needs of each learner and that will be unbiased toward any group is a fallacy. Some of what we know we can be fairly sure of; other aspects of our theories are educated guesses; still other aspects are mere shots in the dark. Although other researchers and practitioners are capable of interpreting research for themselves, we also need to provide honest and clear interpretations. We should not promise what we cannot deliver.

The last issue concerns learner self-development. In order for learners to become independent and self-directed, we need to provide them with opportunities to design aspects of their own learning. To do so means that as designers will have to accept the fact that learners can make some choices that are better for themselves than we can. We will have to give up some of the control we have previously had and turn it over to learners. Ethically, we are committed to providing the best learning experiences for all students. However, as we apply what we know about learning and instruction to the design process and take more control of that process, we run the risk of reducing opportunities for students to become decision makers and participants in the instructional process. Theoretically at least we may limit student self development by providing the "best" instruction we can.

The original question posed at the beginning of this paper was: How much of the instructional process should instructional designers control by pre-planning and managing instruction so that it is equitable? If we agree that students should be at least equally responsible for their own academic success as we are and that promoting self-development by providing learners with opportunities to make choices about their own learning is important, then we have to face the fact that we will have to give up some control of the learning process. This, coupled with the

fact that we may not be able to plan completely unbiased and equitable instruction, means that we need to ask different questions. we may need to begin to search for answers to questions such as:

1. How do we promote a learning environment that helps learners become responsible for their own success?

2. At what point can we say with some assurance that certain methods, activities, and strategies will be successful? How much can we promise from our research?

3. How do we promote learner self-development and at the same time make the best use of our knowledge about designing and managing instruction?

It is doubtful that the answers to such questions will come from research. They will most likely come from individuals and groups of individuals who participate in symposia such as this, and also from our work with students, schools, and businesses. And of course the answers will come as we continue to critically review our goals as educators and the theory bases of our profession

REFERENCES

Abramson, L. Y., Seligman, M. E. P., & Teasdale, J. D. (1978). Learned helplessness in humans: Critiques on reformulation. *Journal of Abnormal Psychology, 87*, 1, 49-74.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*, 191-215.

Bandura, A. (1978). The self system in reciprocal determinism. *American Psychologist, 33*, 344-358.

Bar-Tal, D. (1978). Attributional analysis of achievement-related behavior. *Review of Educational Research, 48*, 259-271.

Belland, J. C. & Baker, P. R. (1988, January). Visual-spatial learning: Issues in equity. Paper presented at the meeting of the Association of Educational Communications and Technology, New Orleans, LA.

Cronbach, L. J. & Snow, R. E. (1977). *Aptitudes and instructional methods*. New York: Irvington.

Damarin, S. K. (1988, January). Issues of gender and computer assisted instruction. Paper presented at the meeting of the Association of Educational Communications and Technology, New Orleans, LA.

Derry, S. J. (1984, April). Strategy training: An incidental learning model for CAI. Paper presented at the meeting of the American Educational Research Association, New Orleans, LA.

Gropper, G. L. (1983). A metatheory of instruction: A framework for analyzing and evaluating instructional theories and models. In C. M. Reiguluth (Ed.), *Instructional-design theories and models: An overview of their current status* (pp. 37-53). Hillsdale, NJ: Lawrence Erlbaum Associates.

Howell, R. (1988, January). The ethics of technological intervention with disabled learners. Paper presented at the meeting of the Association of Educational Communications and Technology, New Orleans, LA.

Landa, L. N. (1983). Descriptive and prescriptive theories of learning and instruction: An analysis of their relationships and interactions. In C. M. Reiguluth (Ed.), *Instructional-design theories and models: An overview of their current status* (pp. 55-69). Hillsdale, NJ: Lawrence Erlbaum Associates.

Martin, B. L. & Briggs, L. J. (1986). *The affective and cognitive domains: Integration for instruction and research.* Englewood Cliffs, NJ: Educational Technology.

Nichols, R. G. (1988, January). Educational technology, a moral issue. Paper presented at the meeting of the Association of Educational Communications and Technology, New Orleans, LA.

Reiguluth, C. M. (Ed.) (1983). *Instructional-design theories and models: An overview of their current status.* Hillsdale, NJ: Lawrence Erlbaum Associates.

Romiszowski, A. J. (1981). *Designing instructional systems.* New York: Nichols.

Snelbecker, G. E. (1983). Is instructional theory alive and well? In C. M. Reiguluth (Ed.), *Instructional-design theories and models: An overview of their current status* (pp. 437-472). Hillsdale, NJ: Lawrence Erlbaum Associates.

Sternberg, R. J. (1983). Criteria for intellectual skill training. *Educational Technology, 12,* (2), 2-12.

Taylor, W. D. & Swartz, J. D. (1988). Instructional technology and proliferating worldviews. Paper presented at the meeting of the Association of Educational Communications and Technology, New Orleans, LA.

Tobias, S. (1987). Learner characteristics. In R. M. Gagne` (Ed.), *Instructional technology: Foundations* (pp. 207-231). Hillsdale, NJ: Lawrence Erlbaum Associates.

Weiner, B. (1979). A theory of motivation for some classroom experiences. *Journal of Educational Psychology, 71,* 3-25.